Urea deep placement: Nitrogen management for Efficient Rice Fertilization

Boost rice yields and save on fertilizer costs through efficient nitrogen management

Deep Urea Placement involves drilling urea granules into rice fields, optimizing nutrient uptake, soil fertility, and productivity. Placed 7 to 14 centimeters deep, it ensures consistent nitrogen supply, particularly suitable for lowland rice farming with clay soils.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use8/9

Project adoption 3

Technology integrated in the Decarbonizing Rice, ENSURE, and Regenerative agri projects.

Inclusion assessment 4

Climate impact 7

Problem

- Low nitrogen use efficiency leading to significant nutrient losses.
- Environmental pollution and greenhouse gas emissions from conventional urea application.
- Reduced rice yields and high production costs due to inefficient fertilization.
- Limited fertilizer performance under variable rainfall and irrigation conditions.

Solution

- Slow-release nitrogen improves nutrient uptake, reduces losses, and minimizes environmental impacts.
- Enhances soil fertility, rice productivity, and resilience to drought.
- Single-season application lowers labor requirements and production costs.
- Suitable for diverse agroecological conditions and both smallholder and commercial rice farming systems.

Key points to design your program

Urea Deep Placement can be integrated into rice value chain development, food security, climate-smart agriculture, and sustainable soil fertility management programs to improve nitrogen use efficiency, increase rice productivity, and reduce fertilizer losses. Its adoption contributes to **SDGs 2, 8, and 13.** To integrate this technology into your project, plan and budget for the following activities and prerequisites:

- **Facilitate access** to urea briquettes, deep placement applicators, and reliable input supply systems.
- **Establish partnerships** with **AfricaRice**, national agricultural research and extension services, fertilizer manufacturers, and agrodealers.
- **Conduct** demonstration plots and training on urea deep placement and nutrient management, and **monitor** nitrogen use efficiency, rice productivity, and technology adoption.

0.25 ton	**100—200** USD	**10** USD	IP
Recommended rate per Ha	Equivalence cost for the recommendated rate per Ha	plunger-type applicator	Open source / open access

Technology from

ProPAS

Commodities

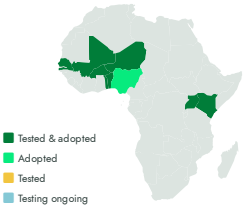
Rice

Sustainable Development Goals

Categories

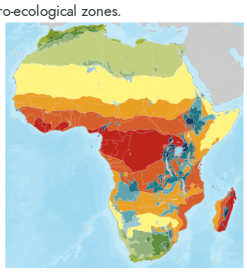
Production, Practices, Fertilizer management

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



Target groups

Farmers